Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] 1.A magnet vent assembly for venting a cryogenic gas from a superconducting magnet of an MRI system, the assembly comprising:
a first burst disc, the first burst disc comprising a first inlet and a first outlet;
a second burst disc, the second burst disc comprising a second inlet coupled to the first inlet and a second outlet coupled to the first outlet; and
wherein the magnet vent assembly is configured to switchably direct a flow path of cryogenic gas through either of the following: the first burst disc and the second burst disc.

[c2] 2.The magnet vent assembly of claim 1, further comprising:
a magnet exhaust;
an exhaust vent;
a first valve in operable communication with the magnet exhaust, the first burst disc, and the second burst disc;
a second valve in operable communication with the exhaust vent, the first burst disc, and the second burst disc; and

wherein the first valve is configured to switchably direct a flow path of cryogenic gas from the magnet exhaust through either of the following: the first burst disc and the second burst disc; and wherein the second valve is configured to switchably direct a flow path of cryogenic gas to the exhaust vent from either of the following: the first burst disc and the second burst disc.

[c3] 3.The magnet vent assembly of claim 2, wherein the first valve and second valve are linked to prevent the blockage of a flow path of the cryogenic gas to the exhaust vent.

[c4] 4.The magnet vent assembly of claim 2, wherein the first valve and second valve are interlocked to prevent the blockage of a flow path of the cryogenic gas to the exhaust vent.

[c5] 5.The magnet vent assembly of claim 2, wherein the valves are 3-port valves.

[c6] 6.The magnet vent assembly of claim 2, wherein the valves are ball valves.

[c7] 7.The magnet vent assembly of claim 2, wherein the valves are vane valves

[c8] 8.The magnet vent assembly of claim 2, wherein the

valves are able to withstand pressure of greater than about 2 atmospheres.

[c9] 9.The magnet vent assembly of claim 2, wherein the valves are able to withstand pressure of greater than about 1 atmospheres.

[c10] 10.The magnet vent assembly of claim 1, further comprising:
a magnet exhaust;
an exhaust vent;
a first valve in operable communication with the magnet exhaust and the first inlet;
a second valve in operable communication with the exhaust vent and first outlet;
a third valve in operable communication with the magnet exhaust and the second inlet;
a fourth valve in operable communication with the exhaust vent and second outlet; and
wherein the first, second, third and fourth valves are configured to switchably direct a flow path of cryogenic gas from the magnet exhaust through either of the following: the first burst disc and the second burst disc.

[c11] 11.The magnet vent assembly of claim 10, wherein the first, second, third and fourth valves are linked to prevent the blockage of a flow path of the cryogenic gas to

the exhaust vent.

[c12] 12.The magnet vent assembly of claim 10, wherein the first, second, third and fourth valves are interlocked to prevent the blockage of a flow path of the cryogenic gas to the exhaust vent.

[c13] 13.The magnet vent assembly of claim 10, wherein the valves are gate valves.

[c14] 14.The magnet vent assembly of claim 10, wherein the valves are able to withstand pressure of greater than about 2 atmospheres.

[c15] 15.The magnet vent assembly of claim 10, wherein the valves are able to withstand pressure of greater than about 1 atmospheres.

[c16] 16.A magnet vent assembly for venting a cryogenic gas from a superconducting magnet of an MRI system, the assembly comprising:
a first burst disc, the first burst disc comprising a first inlet and a first outlet;
the first inlet comprising an inlet valve;
the first outlet comprising an outlet valve;
an inlet flange in operable communication with the first inlet;
an outlet flange in operable communication with the first

outlet; and

wherein the magnet vent assembly is configured for a removable attachment by a service tool, the service tool comprising a second burst disc, and the inlet valve and outlet valve are configured to switchably direct a flow path of cryogenic gas through either of the following: the first burst disc and the second burst disc.

[c17] 17.The magnet vent assembly of claim 16, wherein the valves are 3-port valves.

[c18] 18.The magnet vent assembly of claim 16, wherein the valves are ball valves.

[c19] 19.The magnet vent assembly of claim 16, wherein the valves are vane valves

[c20] 20.The magnet vent assembly of claim 16, wherein the valves are able to withstand pressure of greater than about 2 atmospheres.

[c21] 21.The magnet vent assembly of claim 16, wherein the valves are able to withstand pressure of greater than about 1 atmospheres.

[c22] 22.The magnet vent assembly of claim 16, wherein the inlet and outlet valves are linked to prevent the blockage of a flow path of the cryogenic gas to the exhaust vent.

[c23] 23.The magnet vent assembly of claim 16, wherein the inlet and outlet valves are interlocked to prevent the blockage of a flow path of the cryogenic gas to the exhaust vent.

[c24] 24.A service tool for a magnet vent assembly for venting a cryogenic gas from a superconducting magnet of an MRI system, the magnet vent assembly comprising a first burst disc, the service tool comprising:
an inlet end, configured to be removeably attachable to an inlet flange of a magnet vent assembly;
an outlet end, configured to be removeably attachable to an outlet flange of a magnet vent assembly;
a second burst disc in operable communication with the inlet end and outlet end; and
wherein the service tool is configured to switchable direct a flow path of cryogenic gas through either of the following: the first burst disc and the second burst disc.

[c25] 25.An MRI system comprising:
a cryostat;
a superconducting magnet located in the cryostat;
a first burst disc, the first burst disc comprising a first inlet and a first outlet, and the first inlet is in fluid communication with the cryostat;
a second burst disc, the second burst disc comprising a

second inlet coupled to the first inlet and a second outlet coupled to the first outlet, and the second inlet is in fluid communication with the cryostat;

a vent in fluid communication with the first outlet and the second outlet; and

wherein the MRI system is configured to switchably direct a flow path of cryogenic gas through either of the following: the first burst disc and the second burst disc.